

Claims

1. A fuel cell for production of electrical energy, comprising

a fuel chamber (1)

5 an anode (2a),

a cathode (2b),

an electrolyte (3) disposed between said anode and said cathode,

an oxidant chamber (4), wherein said chambers (1) and (4) enclose said anode, cathode and electrolyte,

10 characterised in that:

said electrolyte (3) is a ceramic CSC (ceria salt composite) electrolyte comprising at least one salt and at least one ceria phase.

2. A fuel cell according to claim 1, wherein the electrolyte comprises salts selected

15 from salts that can make the CSC material function as a specific conductor for

particular ions such as H^+ , O^{2-} , or of other ionic charge, e.g., cationic Li^+ , Na^+ , K^+ , or anionic, CO_3^{2-} , Cl^- and F^- etc., or a mixture thereof, preferably natural salts, e.g. NaCl.

3. A fuel cell according to claim 1 or 2, wherein the electrodes comprises binary

20 oxides, such as $A_xB_yO_z$ (A, B = Li, Mg, Ca, Sr, Cr, Fe, Co, Ni, Mn, Cu, Y, La, Ce, Zr, Ti, etc.), typically, Li_xMO_y (M = Ni, Co, Mn), $Ce_{1-x}B_xO_{2-y}$, MnO_2 and $La_{1-x}Sr_xMn(Co)O_3$.

4. A fuel cell according to claim 1, wherein the electrolyte is sulphate-based CSC for

25 sulphur containing fuels, intended to operate as a high sulphur tolerant CFC device, acting as a pre-gas treatment station and intended to be combined with MCFC power plants.